

WHAT IS CLAIMED IS...

Claims:

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 A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;
 5 a plurality of output receptacles for receiving said bills after said bills have been evaluated;
 a transport mechanism for transporting said bills, one at a time, from said input receptacle to one of said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacle, said
 10 discriminating unit counting and determining the denomination of said bills; and

means for flagging bills meeting or failing to meet a certain criteria; wherein said means for flagging causes said transport mechanism to halt in response to a determination that a bill meets or fails to meet said criteria, said bill meeting or failing to meet said criteria being termed a flagged bill.

2. The currency evaluation device of claim 1 wherein said means for flagging causes
 15 said transport mechanism to halt with said flagged bill being positioned at an identifiable location in one of said output receptacles.

3. The currency evaluation device of claim 1 wherein said means for flagging causes
 said transport mechanism to halt with said flagged bill being located at an identifiable location within said transport mechanism.

20 4. The currency evaluation device of claim 1 wherein said means for flagging causes said transport mechanism to halt with said flagged bill being located at a predetermined position.

5. The currency evaluation device of claim 1 wherein said certain criteria is said
 discriminating unit determining the denomination of a bill and wherein said means for flagging
 causes said transport mechanism to halt when a bill fails to meet said criteria of having its
 25 denomination determined by said discriminating unit, ~~said bill failing to meet said criteria having its~~
~~denomination determined by said discriminating unit being termed a no call bill.~~

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6. ~~The currency evaluation device of claim 5 wherein said means for flagging~~ causes said transport mechanism to halt with said no call bill being positioned at an identifiable location in one of said output receptacles.

7. The currency evaluation device of claim 5 wherein said means for flagging a bill causes said transport mechanism to halt with said no call bill being located at a predetermined position.

8. The currency evaluation device of claim 5 wherein bills meeting said certain criteria of having their denomination determined by said discriminating unit are delivered to a first set of said output receptacles and wherein said no call bill is directed to a second set of output receptacles, said output receptacles of said second set being different from said output receptacles of said first set.

9. The currency evaluation device of claim 8 wherein said second set of output receptacles consists of a single no call output receptacle.

10. The currency evaluation device of claim 9 wherein said means for flagging causes said transport mechanism to halt before said no call bill has been delivered to said no call output receptacle.

11. The currency evaluation device of claim 9 wherein said means for flagging causes said transport mechanism to halt after said no call bill has been delivered to said no call output receptacle.

12. The currency evaluation device of claim 11 wherein said means for flagging causes said transport mechanism to halt with said no call bill being positioned at an identifiable location in said no call output receptacle.

13. The currency evaluation device of claim 12 wherein said means for flagging causes said transport mechanism to halt with said no call bill being the last bill transported to said no call output receptacle.

14. ~~The currency evaluation device of claim 8 wherein said means for flagging causes said transport mechanism to halt before said no call bill has been delivered to one of said second set output receptacles.~~

15. The currency evaluation device of claim 14 wherein said flagging device causes said transport mechanism to halt with said no call bill being located at an identifiable location within said transport mechanism.

16. The currency evaluation device of claim 8 wherein said means for flagging causes said transport mechanism to halt after said no call bill has been delivered to one of said second set output receptacles.

17. The currency evaluation device of claim 16 wherein said means for flagging causes said transport mechanism to halt with said no call bill being positioned at an identifiable location in one of said second set output receptacles.

18. The currency evaluation device of claim 17 wherein said means for flagging causes said transport mechanism to halt with said no call bill being the last bill transported to one of said second set output receptacles.

19. The currency evaluation device of claim 1 wherein said discriminating unit further determines whether said bills are suspect and wherein said certain criteria is said discriminating unit determining a bill is suspect and wherein said means for flagging causes said transport mechanism to halt when a bill meets said criteria of being determined to be suspect by said discriminating unit, said bill being determined to be suspect being termed a suspect bill.

20. The currency evaluation device of claim 19 wherein bills whose denomination has been determined by said discriminating unit are delivered to a first set of said output receptacles and wherein said suspect bill is directed to a second set of output receptacles, said output receptacles of said second set being different from said output receptacles of said first set.

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21. The currency evaluation device of claim 20 wherein said second set of output receptacles consists of a single suspect output receptacle.

22. The currency evaluation device of claim 21 wherein said means for flagging causes said transport mechanism to halt before said suspect bill has been delivered to said suspect output receptacle.

23. The currency evaluation device of claim 21 wherein said means for flagging causes said transport mechanism to halt after said suspect bill has been delivered to said suspect output receptacle.

24. The currency evaluation device of claim 23 wherein said means for flagging causes said transport mechanism to halt with said suspect bill being positioned at an identifiable location in said suspect output receptacle.

25. The currency evaluation device of claim 24 wherein said means for flagging causes said transport mechanism to halt with said suspect bill being the last bill transported to said suspect output receptacle.

26. The currency evaluation device of claim 20 wherein said flagging device causes said transport mechanism to halt before said suspect bill has been delivered to one of said second set output receptacles.

27. The currency evaluation device of claim 26 wherein said flagging device causes said transport mechanism to halt with said suspect bill being located at an identifiable location within said transport mechanism.

28. The currency evaluation device of claim 20 wherein said flagging device causes said transport mechanism to halt after said suspect bill has been delivered to one of said second set output receptacles.

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29. ~~The currency evaluation device of claim 28 wherein said means for flagging causes~~
 said transport mechanism to halt with said suspect bill being positioned at an identifiable location in
 one of said second set output receptacles.

30. The currency evaluation device of claim 29 wherein said means for flagging causes
 5 said transport mechanism to halt with said suspect bill being the last bill transported to one of said
 second set output receptacles.

31. The currency evaluation device of claim 1 wherein said certain criteria is said
 discriminating unit determining the denomination of said bill and wherein said means for flagging
 causes said transport mechanism to halt when a bill fails to meet said criteria of having its
 10 denomination determined by said discriminating unit, said bill failing to meet said criteria having its
 denomination determined by said discriminating unit being termed a no call bill, and
 wherein said discriminating unit further determines whether said bills are suspect.

32. The currency evaluation device of claim 31 wherein said means for flagging also
 causes said transport mechanism to halt when a bill meets a second criteria of being determined to
 15 be suspect by said discriminating unit.

33. The currency evaluation device of claim 32 wherein bills whose denomination has
 been determined by said discriminating unit are delivered to a first set of said output receptacles and
 wherein bills determined by said discriminating unit to be suspect and bills whose denomination has
 not been determined by said discriminating unit are delivered to a second set of said output
 20 receptacles, said output receptacles of said second set being different from said output receptacles
 of said first set.

34. ~~The currency evaluation device of claim 33 wherein said flagging device causes said~~
 transport mechanism to halt after a no call bill or a suspect bill has been delivered to an output
 receptacle of said second set.

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35. The currency evaluation device of claim 34 wherein said means for flagging causes said transport mechanism to halt with said no call bill or said ~~suspect bill~~ being the last bill transported to an output receptacle of said second set.

36. The currency evaluation device of claim 33 wherein bills determined by said discriminating unit to be suspect and bills whose denomination has not been determined by said discriminating unit are delivered to different output receptacles.

37. The currency evaluation device of claim 33 wherein said second set of said output receptacles consists of a single output receptacle.

38. The currency evaluation device of claim 31 wherein bills whose denomination has been determined by said discriminating unit are delivered to a first set of said output receptacles and wherein bills whose denomination has not been determined by said discriminating unit are delivered to a second set of said output receptacles, said output receptacles of said second set being different from said output receptacles of said first set.

39. The currency evaluation device of claim 38 wherein said flagging device causes said transport mechanism to halt after a no call bill has been delivered to an output receptacle of said second set.

40. The currency evaluation device of claim 38 wherein bills determined by said discriminating unit to be suspect by said discriminating unit are also delivered to said second set of said output receptacles.

41. The currency evaluation device of claim 40 wherein said flagging device causes said transport mechanism to halt after a no call bill or a suspect bill has been delivered to an output receptacle of said second set.

42. The currency evaluation device of claim 40 wherein bills determined by said discriminating unit to be suspect and bills whose denomination has not been determined by said discriminating unit are delivered to different output receptacles.

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43. ~~The currency evaluation device of claim 1 having exactly two output receptacles.~~

44. The currency evaluation device of claim 43 wherein said means for flagging causes said transport mechanism to halt with said flagged bill being positioned at an identifiable location in one of said output receptacles.

5 45. The currency evaluation device of claim 43 wherein said means for flagging causes said transport mechanism to halt with said flagged bill being located at an identifiable location within said transport mechanism.

46. The currency evaluation device of claim 43 wherein said means for flagging causes said transport mechanism to halt with said flagged bill being located at a predetermined position.

10 47. The currency evaluation device of claim 43 wherein said certain criteria is said discriminating unit determining the denomination of a bill and wherein said means for flagging causes said transport mechanism to halt when a bill fails to meet said criteria of having its denomination determined by said discriminating unit, said bill failing to meet said criteria having its denomination determined by said discriminating unit being termed a no call bill.

15 48. The currency evaluation device of claim 47 wherein said means for flagging causes said transport mechanism to halt with said no call bill being positioned at an identifiable location in one of said output receptacles.

20 49. The currency evaluation device of claim 47 wherein said means for flagging a bill causes said transport mechanism to halt with said no call bill being located at a predetermined position.

50. The currency evaluation device of claim 47 wherein bills meeting said certain criteria of having their denomination determined by said discriminating unit are delivered to a first output receptacle and wherein said no call bill is directed to the other output receptacle.

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51. The currency evaluation device of claim 50 wherein said means for flagging causes said transport mechanism to halt before said no call bill has been delivered to said other output receptacle.

52. The currency evaluation device of claim 50 wherein said means for flagging causes said transport mechanism to halt after said no call bill has been delivered to said other output receptacle.

53. The currency evaluation device of claim 52 wherein said means for flagging causes said transport mechanism to halt with said no call bill being positioned at an identifiable location in said other output receptacle.

54. The currency evaluation device of claim 53 wherein said means for flagging causes said transport mechanism to halt with said no call bill being the last bill transported to said other output receptacle.

55. The currency evaluation device of claim 43 wherein said discriminating unit further determines whether said bills are suspect and wherein said certain criteria is said discriminating unit determining a bill is suspect and wherein said means for flagging causes said transport mechanism to halt when a bill meets said criteria of being determined to be suspect by said discriminating unit, said bill being determined to be suspect being termed a suspect bill.

56. The currency evaluation device of claim 55 wherein bills whose denomination has been determined by said discriminating unit are delivered to a first output receptacle and wherein said suspect bill is directed to the other output receptacle.

57. The currency evaluation device of claim 56 wherein said means for flagging causes said transport mechanism to halt after said suspect bill has been delivered to said other output receptacle.

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58. The currency evaluation device of claim 57 wherein said means for flagging causes said transport mechanism to halt with said suspect bill being positioned at an identifiable location in said other output receptacle.

59. The currency evaluation device of claim 58 wherein said means for flagging causes said transport mechanism to halt with said suspect bill being the last bill transported to said other output receptacle.

60. The currency evaluation device of claim 56 wherein bills whose denomination has not been determined by said discriminating unit are also delivered to said other output receptacle.

61. The currency evaluation device of claim 50 wherein said transport mechanism is not halted in response to the denomination of a bill not being determined.

62. The currency evaluation device of claim 56 wherein bills whose denomination has not been determined by said discriminating unit are directed to said first output receptacle.

63. The currency evaluation device of claim 43 wherein said certain criteria is said discriminating unit determining the denomination of said bill and wherein said means for flagging causes said transport mechanism to halt when a bill fails to meet said criteria of having its denomination determined by said discriminating unit, said bill failing to meet said criteria having its denomination determined by said discriminating unit being termed a no call bill, and wherein said discriminating unit further determines whether said bills are suspect.

64. The currency evaluation device of claim 63 wherein said means for flagging also causes said transport mechanism to halt when a bill meets a second criteria of being determined to be suspect by said discriminating unit.

65. The currency evaluation device of claim 64 wherein bills whose denomination has been determined by said discriminating unit are delivered to a first output receptacle and wherein bills determined by said discriminating unit to be suspect and bills whose denomination has not been determined by said discriminating unit are directed to the other output receptacle.

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66. The currency evaluation device of claim 65 wherein said flagging device causes said transport mechanism to halt after a no call bill or a suspect bill has been delivered to said other output receptacle.

67. The currency evaluation device of claim 66 wherein said means for flagging causes said transport mechanism to halt with said no call bill or said suspect bill being the last bill transported to said other output receptacle.

68. The currency evaluation device of claim 63 wherein bills whose denomination has been determined by said discriminating unit are delivered to a first output receptacle and wherein bills whose denomination has not been determined by said discriminating unit are directed to the other output receptacle.

69. The currency evaluation device of claim 68 wherein bills determined by said discriminating unit to be suspect are also delivered to said other output receptacle.

70. The currency evaluation device of claim 68 wherein bills determined by said discriminating unit to be suspect are delivered to said first output receptacle.

71. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to one of said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit, wherein said means for flagging causes said transport mechanism to halt.

72. The currency evaluation device of claim 71 wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle.

73. The currency evaluation device of claim 71 wherein said means for flagging a bill causes said transport mechanism to halt with said bill whose denomination has not been determined being located at a predetermined position.

74. The currency evaluation device of claim 71 wherein said detector of said discriminating unit includes a stationary optical scanning head for scanning at least a preselected segment of each bill transported between said input and output receptacles by said transport mechanism, and producing an output signal representing the scanned image and wherein said discriminating unit includes signal processing means for receiving said output signal and determining the denomination of each scanned bill.

75. The currency evaluation device of claim 71 wherein said transport mechanism transports bills at a rate of at least about 800 bills per minute.

76. The currency evaluation device of claim 71 wherein said transport mechanism transports bills at a rate of at least about 1000 bills per minute.

77. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to one of said output receptacles along a transport path;

a discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacle, said discriminating unit counting and determining the denomination of said bills and determining whether said bills are counterfeit;

and

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means for flagging a bill when said bill is determined to be counterfeit by said discriminating unit; wherein said means for flagging causes said transport mechanism to halt when said discriminating unit determines that a bill is counterfeit.

78. The currency evaluation device of claim 77 wherein said means for flagging causes said transport mechanism to halt with said bill which is determined to be counterfeit being the last bill transported to one of said output receptacles.

79. The currency evaluation device of claim 77 wherein said means for flagging a bill causes said transport mechanism to halt with said bill which is determined to be counterfeit being located at a predetermined position.

80. The currency evaluation device of claim 77 wherein said detector of said discriminating unit includes a stationary optical scanning head for scanning at least a preselected segment of each bill transported between said input and output receptacles by said transport mechanism, and producing an output signal representing the scanned image and wherein said discriminating unit includes signal processing means for receiving said output signal and determining the denomination of each scanned bill.

81. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle positioned to receive a stack of bills to be evaluated;
a plurality of output receptacles positioned to receive said bills after said bills have been evaluated,

a transport mechanism comprising a transport drive motor and transport rollers, said transport mechanism located between said input receptacle and said output receptacle to transport said bills, one at a time, from said input receptacle to one of said output receptacles along a transport path;

a discriminating unit comprising a detector positioned along said transport path between said input receptacle and said output receptacle and comprising a central processing unit, said detector generating a characteristic information output signal in response to detected characteristic information, said characteristic information output signal being electrically

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coupled to said central processing unit, said central processing unit receiving said characteristic information output signal and generating a denomination signal in response thereto; and

a flagging device comprising said central processing unit and an encoder linked to said transport mechanism, said encoder producing tracking signals in response to the physical movement of said bills, said central processing unit generating a no call signal when the denomination of a bill is not determined by said central processing unit; wherein said flagging device generates a stopping signal in response to said no call signal and wherein said transport drive motor stops in response to said stopping signal.

82. The currency evaluation device of claim 81 wherein said central processing unit generates a scanned pattern from each of said bills based on said characteristic information output signal and determines the denomination of a bill by comparing the scanned pattern generated from the bill with master patterns associated with different denominations of bills, said master patterns being stored in a memory.

83. The currency evaluation device of claim 82 wherein said detector comprises an optical scanhead and wherein said scanned and master patterns comprise optical patterns.

84. The currency evaluation device of claim 83 wherein said central processing unit - correlates the scanned pattern generated from the bill with master patterns associated with different denominations of bills and determines the denomination of the bill if the scanned pattern sufficiently correlates with one of the master patterns.

85. The currency evaluation device of claim 81 wherein said flagging device causes said transport mechanism to halt with said bill whose denomination has not been determined being located at a predetermined position.

86. The currency evaluation device of claim 81 wherein said flagging device causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to one of said output receptacles.

87. ~~A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:~~

an input receptacle positioned to receive a stack of bills to be evaluated;

a plurality of output receptacles positioned to receive said bills after said bills have been evaluated;

a transport mechanism comprising a transport drive motor and transport rollers, said transport mechanism located between said input receptacle and said output receptacle to transport said bills, one at a time, from said input receptacle to one of said output receptacles along a transport path;

a discriminating unit comprising a detector positioned along said transport path between said input receptacle and said output receptacle and comprising a central processing unit, said detector generating a characteristic information output signal in response to detected characteristic information, said characteristic information output signal being electrically coupled to said central processing unit, said central processing unit receiving said characteristic information output signal and generating a denomination signal in response thereto; said central processing unit also generating a counterfeit signal when a bill is determined to be counterfeit by said central processing unit, and

a flagging device comprising said central processing unit and an encoder linked to said transport mechanism, said encoder producing tracking signals in response to the physical movement of said bills; wherein said flagging device generates a stopping signal in response to said counterfeit signal and wherein said transport drive motor stops in response to said stopping signal.

88. A method of counting and discriminating currency bills of different denominations using a currency evaluation device comprising the steps of:

receiving a stack of bills to be evaluated an input receptacle of the evaluation device;

transporting, under control of the evaluation device, said bills, one at a time, from said input receptacle to one of a plurality of output receptacles of the evaluation device;

counting and determining the denomination of said bills under control of the evaluation device; and

performing a currency authentication test on said bills under control of the evaluation device; and

flagging, under control of the evaluation device, a bill meeting or failing to meet a certain criteria; wherein said flagging step comprises halting said transporting of said bills in said stack.

89. The method of claim 88 wherein said certain criteria is the evaluation device
5 determining the denomination of said bill and wherein said flagging step comprises halting said transporting of said bills in said stack when said bill fails to meet said criteria of having its denomination determined by said evaluation device.

90. The method of claim 89 wherein said flagging step comprises halting said
transporting of said bills in said stack with said bill being located at a predetermined position.

10 91. The method of claim 89 wherein said flagging step comprises halting said transporting of said bills in said stack with said bill being the last bill transported to one of said output receptacles.

15 92. The method of claim 88 wherein said certain criteria is the evaluation device determining said bill is counterfeit and wherein said flagging step comprises halting said transporting of said bills in said stack when said bill fails said currency authentication test.

93. The method of claim 92 wherein said flagging step comprises halting said transporting of said bills in said stack with said bill being located at a predetermined position.

20 94. The method of claim 92 wherein said flagging step comprises halting said transporting of said bills in said stack with said bill being the last bill transported to one of said output receptacles.

95. The method of claim 88 wherein said flagging step comprises halting said transporting of said bills in said stack with said bill being located at a predetermined position.

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96. The method of claim 88 wherein said flagging step comprises halting said transporting of said bills in said stack with said bill being the last bill transported to one of said output receptacles.

97. The method of claim 88 wherein said step of determining the denomination of said bills comprises scanning by a stationary optical scanning head at least a preselected segment of each bill transported between said input and output receptacles, and producing an output signal representing the scanned image.

98. A method of operating a currency evaluation device that discriminates the denomination currency bills comprising the steps of:
receiving a stack of bills to be evaluated an input receptacle of the evaluation device;
transporting, under control of the evaluation device, said bills, one at a time, from said input receptacle to a plurality of output receptacles of the evaluation device;
determining the denomination of said bills under control of the evaluation device; and
presenting in one of said output receptacles bills whose denominations are not determined by said determining step.

99. The method of claim 98 wherein bills whose denominations are determined are transported to a first set of output receptacles and wherein bills whose denominations are not determined are delivered to a second set of output receptacles, wherein said output receptacles of said second set are different from said output receptacles of said first set.

100. The method of claim 98 wherein said evaluation device consists of two output receptacles and wherein bills whose denominations are determined are transported to a first output receptacle and wherein bills whose denominations are not determined are presented in the other output receptacle.

101. The method of claim 98 further comprising the step of performing a currency authentication test on said bills under control of the evaluation device.

102. The method of claim 101 wherein bills whose denominations are determined are transported to a first set of output receptacles and wherein bills whose denominations are not determined are delivered to a second set of output receptacles, wherein said output receptacles of said second set are different from said output receptacles of said first set.

5 103. The method of claim 102 wherein bills that fail said authentication test are presented in one of said first set output receptacles.

104. The method of claim 103 wherein bills that fail said authentication test are presented in one of said second set output receptacles.

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10 105. The method of claim 101 wherein said evaluation device consists of two output receptacles and wherein bills whose denominations are determined are transported to a first output receptacle and wherein bills whose denominations are not determined are presented in the other output receptacle.

106. The method of claim 105 wherein bills that fail said authentication test are presented in said first output receptacle.

15 107. The method of claim 105 wherein bills that fail said authentication test are presented in said other output receptacle.

108. A method of operating a currency evaluation device that discriminates the denomination currency bills and authenticates the currency bills comprising the steps of:
receiving a stack of bills to be evaluated an input receptacle of the evaluation device;
20 transporting, under control of the evaluation device, said bills, one at a time, from said input receptacle to a plurality of output receptacles of the evaluation device;
determining the denomination of said bills under control of the evaluation device;
performing a currency authentication test on said bills under control of the evaluation device; and
25 presenting in one of said output receptacles bills that fail said authentication test.

~~109. The method of claim 108 wherein bills whose denominations are determined are transported to a first set of output receptacles and wherein bills that fail said authentication test are delivered to a second set of output receptacles, wherein said output receptacles of said second set are different from said output receptacles of said first set.~~

5 110. The method of claim 109 wherein bills whose denominations are not determined are presented in one of said first set output receptacles.

111. The method of claim 109 wherein bills whose denominations are not determined are presented in one of said second set output receptacles.

10 112. The method of claim 109 wherein bills whose denominations are not determined are off-sorted to one of said second set output receptacles without halting said transporting step.

15 113. The method of claim 108 wherein said evaluation device consists of two output receptacles and wherein bills whose denominations are determined are transported to a first output receptacle and wherein bills that fail said authentication test are presented in the other output receptacle.

114. The method of claim 113 wherein bills whose denominations are not determined are presented in said first output receptacle.

115. The method of claim 113 wherein bills whose denominations are not determined are presented in said other output receptacle.

20 116. The method of claim 113 wherein bills whose denominations are not determined are off-sorted to said other output receptacle without halting said transporting step.

117. A method of operating a currency evaluation device that discriminates the denomination currency bills and authenticates the currency bills comprising the steps of:

receiving a stack of bills to be evaluated an input receptacle of the evaluation device;
transporting, under control of the evaluation device, said bills, one at a time, from said
input receptacle to a plurality of output receptacles of the evaluation device;
determining the denomination of said bills under control of the evaluation device;
5 performing a currency authentication test on said bills under control of the evaluation
device;
detecting any bills transported in a doubled or overlapping manner; and
presenting in one of said output receptacles bills meeting or failing to meet certain
criteria.

10 118. The method of claim 117 wherein bills whose denominations are determined
are transported to a first set of output receptacles and wherein bills that fail said authentication
test and bills that are detected being transported in a doubled or overlapping manner are
delivered to a second set of output receptacles, wherein said output receptacles of said second
set are different from said output receptacles of said first set.

15 119. The method of claim 118 wherein bills whose denominations are not
determined are presented in one of said first set output receptacles.

20 120. The method of claim 117 wherein bills whose denominations are not
determined are presented in a first set of output receptacles and bills that are detected being
transported in a doubled or overlapping manner are delivered to said first set of output
receptacles and wherein bills that fail said authentication test are presented in a second set of
output receptacles, wherein said output receptacles of said second set are different from said
output receptacles of said first set.

25 121. The method of claim 117 wherein the evaluation device consists of two output
receptacles and wherein bills whose denominations are not determined are presented in a first
output receptacle, bills that are detected being transported in a doubled or overlapping manner
are delivered to said first output receptacle, and bills that fail said authentication test are
presented in the other output receptacle.

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122. The method of claim 117 wherein the evaluation device consists of two output receptacles and wherein bills whose denominations are determined are delivered to a first output receptacle, bills whose denominations are not determined are presented in said first output receptacle, bills that are detected being transported in a doubled or overlapping manner are delivered to the other output receptacle, and bills that fail said authentication test are presented in said other output receptacle.

123. A method of operating a currency evaluation device that discriminates the denomination currency bills comprising the steps of:
receiving a stack of bills to be evaluated an input receptacle of the evaluation device;
transporting, under control of the evaluation device, said bills, one at a time, from said input receptacle to one or more output receptacles of the evaluation device;
determining the denomination of said bills under control of the evaluation device;
detecting the occurrence of an error condition; and
suspending said transporting upon the detection of said error condition so that a bill triggering said error condition is stopped before being delivered into one of said output receptacles such that said bill is located within said transport mechanism.

124. The currency evaluation device of claim 123 wherein said bill is stopped at a predetermined position with said transport mechanism.

125. The currency evaluation device of claim 123 wherein said error condition is a stranger error condition.

126. The currency evaluation device of claim 123 wherein said error condition is a denomination change error condition.

127. The currency evaluation device of claim 123 wherein said error condition is a separate series error condition.

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128. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit counting and determining the denomination of said bills;

means for flagging a bill meeting or failing to meet a certain criteria, said means for flagging causing said transport mechanism to halt in response to the detection of a bill meeting or failing to meet said criteria; and

a routing interface, said routing interface comprising a data retrieval device, said data retrieval device receiving information from a user of said evaluation device specifying to which output receptacles bills that are flagged by said flagging means bills are to be directed.

129. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit determining the denomination of said bills; and

a routing interface comprising a data retrieval device, said data retrieval device receiving information from a user of said evaluation device specifying to which output receptacles bills of one or more denominations and bills whose denominations have not been determined by said discriminating unit are to be directed; said routing interface permitting said

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~~user to direct bills whose denominations have not been determined to any one or any group of said plurality of output receptacles.~~

130. The currency evaluation device of claim 129 further comprising a flagging control interface, said flagging control interface comprising a flagging data retrieval device, said flagging data retrieval device receiving information from a user of said evaluation device specifying whether said evaluation device should suspend operation based on the detection of a bill whose denomination has not been determined.

131. The currency evaluation device of claim 130 wherein said flagging data retrieval device receives information from said user specifying a predetermined position at which said bill whose denomination has not been determined is to be located when the operation of said evaluation device is suspended.

132. The currency evaluation device of claim 131 wherein said flagging data retrieval device permits said user to specify that a bill whose denomination has not been determined is to be the last bill delivered to one of said output receptacles when the operation of said evaluation device is suspended.

133. The currency evaluation device of claim 130 wherein said flagging data retrieval device comprises a touch-screen.

134. The currency evaluation device of claim 129 wherein said data retrieval device comprises a touch-screen.

135. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:
 an input receptacle for receiving a stack of bills to be evaluated;
 a plurality of output receptacles for receiving said bills after said bills have been evaluated;

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a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit determining the denomination of said bills;

means for flagging a bill meeting or failing to meet a certain criteria; and

a routing interface comprising a data retrieval device, said data retrieval device receiving information from a user of said evaluation device specifying to which output receptacles bills flagged by said means for flagging are to be directed; said routing interface permitting said user to direct flagged bills to any one or any group of said plurality of output receptacles.

136. The currency evaluation device of claim 135 further comprising a flagging control interface, said flagging control interface comprising a flagging data retrieval device, said flagging data retrieval device receiving information from a user of said evaluation device specifying whether said evaluation device should suspend operation based on the detection of a bill meeting or failing to meet said criteria.

137. The currency evaluation device of claim 136 wherein said flagging data retrieval device receives information from said user specifying a predetermined position at which said flagged bill is to be located when the operation of said evaluation device is suspended.

138. The currency evaluation device of claim 137 wherein said flagging data retrieval device permits said user to specify that a flagged bill is to be the last bill delivered to one of said output receptacles when the operation of said evaluation device is suspended.

139. The currency evaluation device of claim 137 wherein said flagging data retrieval device permits said user to specify that the operation of said evaluation device is to be suspended before a flagged bill has been delivered to one of said output receptacles.

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140. ~~A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:~~

an input receptacle for receiving a stack of bills to be evaluated;

5 a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

10 a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit determining the denomination of said bills and detecting the occurrence of a plurality of error conditions;

an interface permitting a user of said evaluation device to specify how said plurality of error conditions are to be handled.

15 141. The currency evaluation device of claim 140 wherein said interface permits said user to specify, for each of said error conditions, to which output receptacle or receptacles a bill triggering a particular error condition is to be directed.

142. The currency evaluation device of claim 140 wherein said interface permits said user to specify, for each of said error conditions, whether said evaluation device should suspend operation.

20 143. The currency evaluation device of claim 140 wherein said interface permits said user to specify that the operation of said evaluation device should be suspended so that a bill triggering a particular error condition is stopped before being delivered into one of said output receptacles such that said bill is located within said transport mechanism.

25 144. ~~The currency evaluation device of claim 143 wherein said bill is stopped at a predetermined position within said transport mechanism.~~

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145. The currency evaluation device of claim 143 wherein said particular error condition is a stranger error condition.

146. The currency evaluation device of claim 143 wherein said particular error condition is a denomination change error condition.

5 147. The currency evaluation device of claim 143 wherein said particular error condition is a separate series error condition.

10 148. The currency evaluation device of claim 140 wherein said interface permits said user to specify that upon the occurrence of a particular error condition (1) the operation of said evaluation device should be suspended or (2) a bill triggering said particular error condition should be off-sorted to an output receptacle without suspending the operation of said evaluation device.

15 149. The currency evaluation device of claim 148 wherein said interface permits said user to specify that upon the occurrence of a particular error condition the operation of said evaluation device should be suspended so that a bill triggering said particular error condition is presented in an output receptacle.

20 150. The currency evaluation device of claim 148 wherein said interface permits said user to specify that upon the occurrence of a particular error condition the operation of said evaluation device should be suspended so that a bill triggering a particular error condition is stopped before being delivered into one of said output receptacles such that said bill is located within said transport mechanism.

25 151. The currency evaluation device of claim 140 wherein said interface permits said user to specify that upon the occurrence of a particular error condition whether the operation of said evaluation device should be suspended so that a bill triggering a particular error condition is stopped (1) before being delivered into one of said output receptacles such that said bill is located within said transport mechanism or (2) after being delivered into one of said output receptacles such that said bill is the last bill delivered into said one output receptacle.

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152. The currency evaluation device of claim 151 wherein said particular error condition is a stranger error condition.

153. The currency evaluation device of claim 151 wherein said particular error condition is a denomination change error condition.

5 154. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

at least one output receptacle for receiving said bills after said bills have been evaluated;

10 a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit determining the denomination of said bills and detecting the occurrence of a plurality of error conditions;

15 wherein upon the detection of a particular error condition the operation of said evaluation device is suspended so that a bill triggering said particular error condition is stopped before being delivered into said output receptacle such that said bill is located within said transport mechanism.

20 155. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

at least one output receptacle for receiving said bills after said bills have been evaluated;

25 a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output

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receptacles, said discriminating unit determining the denomination of said bills and detecting the occurrence of a plurality of error conditions; and

an interface permitting a user to specify that the operation of said evaluation device should be suspended upon the detection of a particular error condition so that a bill triggering said particular error condition is stopped before being delivered into one of said output receptacles such that said bill is located within said transport mechanism.

156. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacles along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit determining the denomination of said bills, said discriminating unit further determining whether any of said bills are suspect;

a routing interface comprising a data retrieval device, said data retrieval device receiving information from a user of said evaluation device specifying to which output receptacles (1) bills of one or more denominations, (2) bills whose denominations have not been determined by said discriminating unit, and (3) bills that are determined to be suspect are to be directed; said routing interface permitting said user to direct bills whose denominations have not been determined and bills that are determined to be suspect to any one or any group of said plurality of output receptacles.

157. A currency evaluation device comprising:

a discriminating unit for evaluating currency bills, said discriminating unit including a detector, said discriminating unit determining the denomination of said bills and detecting the occurrence of a plurality of error conditions;

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~~an interface permitting a user of said evaluation device to specify how said plurality of error conditions are to be handled; and~~

~~a memory storing user information specifying how said plurality of error conditions are to be handled.~~

5 158. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

an output receptacle for receiving said bills after said bills have been evaluated;

10 a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacle, said discriminating unit determining the denomination of said bills and detecting the occurrence of a plurality of error conditions;

15 a memory storing information associated with a plurality of modes of operation of the device, said memory being designed to store at least one user-defined mode of operation;

an interface permitting a user of said evaluation device to define said user-defined mode of operation; said interface receiving information from said user specifying how said device is to operate including how said plurality of error conditions are to be handled; said
20 information being stored in said memory;

a mode selection element permitting the user to select one of said modes of operation.

159. A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

25 a plurality of output receptacles for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

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a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacles, said discriminating unit determining the denomination of said bills and detecting the occurrence of a plurality of error conditions;

5 a nonvolatile memory storing information associated with a plurality of modes of operation of the device, said memory being designed to store at least one user-defined mode of operation;

10 an interface permitting a user of said evaluation device to define said user-defined mode of operation; said interface receiving information from said user specifying criteria for evaluating said bills and specifying to which output receptacle a bill meeting a certain criteria is to be directed; said information being stored in said nonvolatile memory; and

a mode selection element permitting the user to select one of said modes of operation.

160. A currency transport mechanism for transporting currency bills, one at a time, to one of a plurality of output receptacles, said currency transport mechanism comprising:

15 at least one transport plate being substantially smooth and without surface features and having therein a plurality of apertures;

at least one follower plate being substantially smooth and without surface features, said

at least one follower plate being substantially parallel and positioned in spaced relation to said at least one transport plate so as to define a currency pathway there between; and

20 a plurality of transport rolls wherein each transport roll protrudes through a corresponding one of said plurality of apertures so as to frictionally engage and transport currency bills along said pathway.

161. A transport mechanism for transporting documents, one at a time, to one of a plurality of output receptacles, said transport mechanism comprising:

25 at least one transport plate being substantially smooth and without surface features and having therein a plurality of apertures; and

at least one follower plate being substantially smooth and without surface features, said at least one follower plate being substantially parallel and positioned in spaced relation to said at least one transport plate so as to define a pathway there between, said at least one follower

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plate being adapted to be moved apart from said at least one transport plate so as to allow access to said pathway, said at least one follower plate includes at least one diverter having an open and a closed position being triggered by at least one solenoid, said closed position being defined by documents being diverted from said pathway into one of said plurality of output receptacles, and said open position being defined by documents progressing along said pathway past said at least one diverter.

162. A transport mechanism for carrying currency bills, one at a time, to an evaluating mechanism and then to one of a plurality of output receptacles, said transport mechanism comprising:

transport means for carrying currency bills between an evaluating mechanism and a plurality of output receptacles, said transport means having a first substantially planar region defining a first plane and a second substantially planar region defining a second plane, said first substantially planar region and said second substantially planar region substantially defining said transport means between said evaluating mechanism and said plurality of output receptacles, and said second substantially planar region does not deviate substantially from said first substantially planar region.

163. A transport mechanism for carrying documents, one at a time, to an - discriminating and authenticating mechanism having at least one scanhead and then to one of a plurality of output receptacles, said transport mechanism comprising:

transport means having at least one transport plate having therein a plurality of apertures for carrying documents between a discriminating and authenticating mechanism and a plurality of output receptacles, said transport means having a first substantially planar region defining a first plane and a second substantially planar region defining a second plane, said first substantially planar region and said second substantially planar region substantially defining said transport means between said discriminating and authenticating mechanism and said plurality of output receptacles, said second substantially planar region does not deviate substantially from said first substantially planar region;

at least one follower plate being substantially smooth and without surface features, said at least one follower plate being substantially parallel and proximate to said at least one

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~~transport plate, wherein said at least one follower plate and said at least one transport plate~~
define a pathway there between; and

a plurality of transport rolls protruding through one of said plurality of apertures so as
to frictionally engage and transport a document along said pathway towards one of said
5 plurality of output receptacles.

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